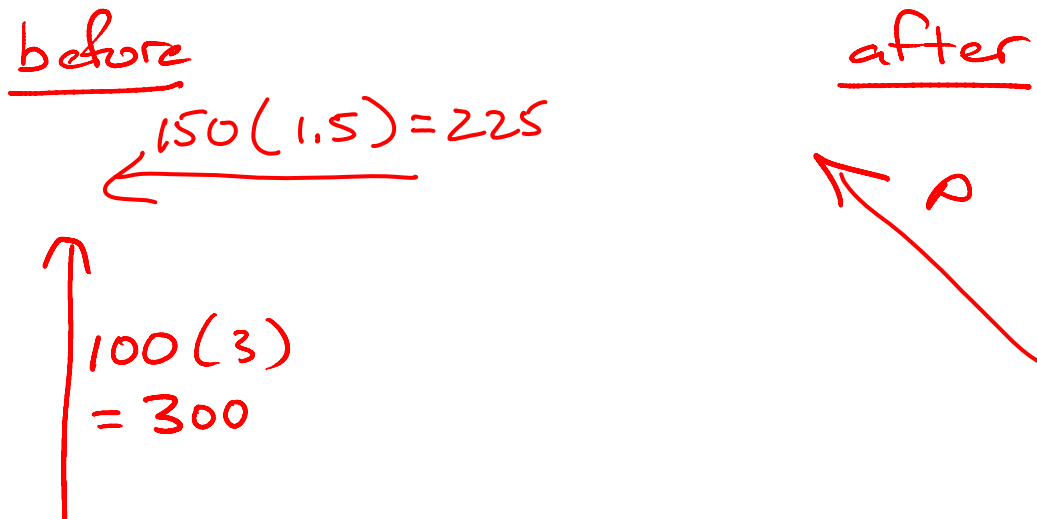
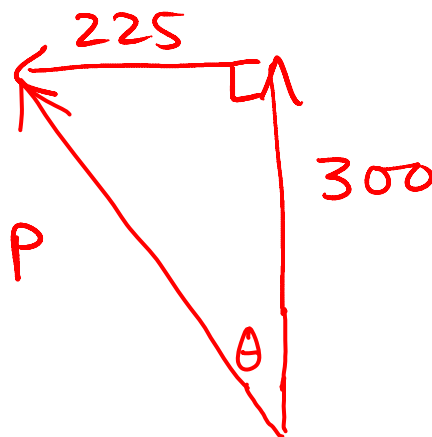


Example #15: A 100 kg football player going 3.0 m/s north, tackles another player of mass 150 kg going 1.5 m/s east. The players entangle. What is their combined speed and direction?



⇒ vector sum of "before" = 'p' "after"



$$p = \sqrt{225^2 + 300^2} \quad p = 375 \frac{\text{kg} \cdot \text{m}}{\text{s}}$$

$$p = mv \quad 375 = [100 + 150]v \quad v = 1.5 \text{ m/s}$$

$$\theta = \tan^{-1} \frac{225}{300} = 37^\circ$$

$$\Rightarrow \boxed{v = 1.5 \text{ m/s @ } 37^\circ \text{ W of N}}$$